

WHAT IS CLAIMED IS:

1. An optical element module package having a laser diode for projecting optical signals and a photo diode for monitoring the optical signals projected from the laser diode, comprising:

5 a stem having a first through-hole formed in a long-hole shape that is parallel to the diametrical direction of the stem; and
a plurality of leads arranged in a row and provided in the first through-hole,
wherein the first through-hole is filled with a sealant of a glass material so that the
10 stem and the plurality of leads are held together.

2. The optical element module package according to claim 1, wherein the stem has a heat sink block protruding from one end thereof, the heat sink block being adjacent to the first through-hole.

15

3. The optical element module package according to claim 2, further comprising a sub-mount attached to one end of the heat sink block, the sub-mount having a circuit pattern formed on a surface thereof.

20 4. The optical element module package according to claim 3, wherein the sub-mount is mounted with a laser diode for modulating radio-frequency signals into optical signals and a photo diode detecting the optical signals projected from the laser diode.

5. The optical element module package according to claim 1, wherein the plurality of leads includes a DC bias lead for the laser diode, a radio-frequency signal lead, a lead for the monitoring photo diode, and at least one ground lead.

5 6. The optical element module package according to claim 1, wherein the plurality of leads include at least one ground lead and a radio-frequency signal lead for the laser diode.

7. The optical element module package according to claim 1, wherein the
10 package further comprises a pair of second through-holes extending through the stem from one side to the other and a pair of additional leads extending through the second through-holes, wherein the second through-holes are filled with a sealant of a glass material so that the stem and the additional leads are held together.

15 8. The optical element module package according to claim 7, wherein one of the pair of additional leads is a DC bias lead for the laser diode and the other is a lead for the monitoring photo diode.

9. The optical element module package according to claim 7, wherein the
20 stem has a heat sink block protruding from one end thereof, the heat sink block being positioned between the second through-holes adjacent to the first through-hole.

10. A method for manufacturing an optical element module package including a laser diode and a photo diode, comprising the steps of:

providing a stem having an elongated through-hole formed in a long-hole shape extending parallel to the diametrical direction of the stem;

5 providing a lead frame having a plurality of leads extending in a direction away from a plate;

inserting the ends of the leads into the through-hole from one end of the stem and aligning the ends of the leads; and

sealing the through-hole with a sealant of a glass material.

10

11. The method according to claim 10, wherein the stem has a heat sink block protruding from a side thereof, the heat sink block being adjacent to the through-hole.

12. The method according to claim 11, further comprises the step of mounting
15 a sub-mount to one end of the heat sink block, the sub-mount having a circuit pattern formed on a surface thereof, on which the laser diode is mounted.

13. The method according to claim 10, further comprising a step of sealing
the through-hole, in which the leads have been aligned and fixed, with a sealant and then
20 separating the plate of the lead frame from the leads.

14. The method according to claim 10, wherein the sealant is melted at a temperature of about 500 °C to seal the through-hole.

15. An optical element module package having a laser diode for projecting
5 optical signals and a photo diode for monitoring the optical signals projected from the laser diode, comprising:

a stem having a first through-hole formed in a long-hole shape and a pair of second through-holes formed on the stem; and

a radio-frequency lead provided in the first through-hole and a plurality of leads
10 provided in the second through-holes.

16. The optical element module package according to claim 15, wherein the radio frequency lead comprises a radio-frequency signal lead and a pair of ground leads.

15 17. The optical element module package according to claim 15, wherein the plurality of leads constitute a DC bias lead and lead for a photo diode.

18. The optical element module package according to claim 15, wherein the optical element module package is adaptively assembled onto a printed circuit board, so
20 that the radio-frequency lead provided in the first through-hole is electrically coupled to the upper top side of the circuit board, and the plurality of leads provided in the second through-holes are electrically coupled to the lower side of the circuit board.

19. The optical element module package according to claim 18, wherein the distance between the first and second through holes is selectively adjusted in accordance with the thickness of the circuit board.

5 20. The optical element module package according to claim 15, wherein the stem has a heat sink block protruding from one end thereof, the heat sink block being positioned between the second through-holes adjacent to the first through-hole.

21. The optical element module package according to claim 15, wherein the
10 first and second through-hole is filled with a sealant of a glass material so that the stem and all leads are held together.